

NEW JERSEY  
BEST PRACTICES  
2002-2003 APPLICATION*Woodcliff M.S.*

Failure to comply with the procedures for submission of the application will result in the elimination of the application.

## Application Requirements:

1. **RESPONSES** to the information and the statements below must be **ANONYMOUS** and **ACCURATE**. No reference should be made to the names of the district, the school(s) or community. Use the words "the school" or "the schools" in responding to the statements
2. **USE ONLY THE SPACE PROVIDED ON THE APPLICATION FORM** on pages 1, 2 (if applicable), and 4. Do not include any additional materials, as they will not be reviewed in the selection process.
3. Applications must be typed on 8 1/2" x 11" white paper, portrait format. Twelve-point or larger computer font or fourteen-pitch or larger typewritten font must be used. This sentence is in twelve-point Times New Roman.
4. Keyboarded responses to all the statements below must be no more than a total of four pages. Keyboard and number the statement followed by the response. Format your response for clarity.
5. **The information on page 4 and the responses** to statements must be copied on one side of the page. The information on pages 1 and 2 (if applicable) must be copied on one side of the page. Staple pages 1, 2 (if applicable), 4, and the keyboarded responses together, in that same order.
6. The original application must be signed by the district chief school administrator or charter school lead person, indicating his/her approval.
7. **The original and seven copies of the application** must be submitted to the county superintendent of schools by **December 15, 2002**, with the **Itemized List of District Applications** form. Keep the seven copies of each application together with the original containing the signature of the district chief school administrator or charter school lead person on the top of each set.

| The following data is required to assist the panelists in the evaluation of the application: |              |  |
|--|--------------|--|
| Type of School   | Grade Levels | Practice Name  |
| <input checked="" type="checkbox"/> Elementary School  | <u>6 - 8</u> | <u>Master of the Game</u>  |
| <input checked="" type="checkbox"/> Middle School  |              | Number of Schools with Practice <u>1</u>   |
| <input type="checkbox"/> Junior High School  |              | Number of Districts with Practice <u>1</u>   |
| <input type="checkbox"/> High School   |              | Location <input type="checkbox"/> Urban/City <input type="checkbox"/> Suburban With Urban Characteristics            |
| <input type="checkbox"/> Other: _____  |              | <input checked="" type="checkbox"/> Suburban <input type="checkbox"/> Small City/Town <input type="checkbox"/> Rural |

## Check the ONE CATEGORY into which the practice best fits.

- |   |   |  |
|---|---|--|
| <input type="checkbox"/> Arts (Visual and Performing Arts)  | <input type="checkbox"/> Gifted and Talented Programs   | <input type="checkbox"/> Safe Learning Environment             |
| <input type="checkbox"/> Assessment/Evaluation              | <input type="checkbox"/> Guidance and Counseling Programs   | <input type="checkbox"/> School-to-Careers/Workplace Readiness |
| <input type="checkbox"/> Citizenship/Character Education    | <input type="checkbox"/> Health and Physical Education  | <input type="checkbox"/> Science                               |
| <input type="checkbox"/> Diversity and Equity Programs      | <input type="checkbox"/> Language Arts Literacy   | <input type="checkbox"/> Social Studies                        |
| <input type="checkbox"/> Early Childhood Education Programs | <input type="checkbox"/> Mathematics  | <input type="checkbox"/> Special Education                     |
| <input type="checkbox"/> Educational Support Programs       | <input type="checkbox"/> Professional Development   | <input type="checkbox"/> World Languages/Bilingual Education   |
| <input checked="" type="checkbox"/> Educational Technology  | <input type="checkbox"/> Public Engagement<br>(family involvement and partnerships<br>with business, community, school districts,<br>and/or higher education) |  |

1. Describe the practice proposed for recognition, and list its objectives. Detail how the practice is innovative and how it promotes high student achievement.
2. List the specific *Core Curriculum Content Standards*, including the *Cross-Content Workplace Readiness Standards*,\* addressed by the practice and describe how the practice addresses those standard(s). Provide an example to substantiate your response.
3. Describe the educational needs of students that the practice addresses. Document the assessment measures used to determine the extent to which the objectives of the practice have been met. Provide assessments and data to show how the practice met these needs.
4. Describe how you would replicate the practice in another school and/or district.

\*The 2002 edition of the *Core Curriculum Content Standards* published by the New Jersey State Department of Education was disseminated to all districts and charter schools and is available on line through the department's web site at <http://www.state.nj.us/education>.

I. **PROGRAM DESCRIPTION** – *Describe the practice proposed for recognition, and list its objectives. Detail how the practice is innovative and how it promotes high student achievement.*

### **Introduction/Overview**

“Master of the Game” is a program designed to promote technology integration, interdisciplinary and thematic study, problem based-learning and the grounding of content within a “real world” context. Students use higher order thinking skills to evaluate content and information from interdisciplinary curricular activities for the purposes of constructing an interactive game using sophisticated multimedia authoring software. The game format is built around a central page in a multimedia program. This page contains links to various clues left for the player who must evaluate all information to solve the problem posed by the game’s creator and win. Content for the games has varied from the archaeological study of human origins to the study of forensic science. Each student must apply and integrate New Jersey academic core content standards with advanced technological skills. As the designer of the game, the student anticipates the actions of the player and creates appropriate responses. Critical thinking skills are required as students analyze and evaluate content. Both the player and the creator benefit by gaining valuable academic knowledge and computer skills.

### **Program Objectives**

1. Technology Integration through Problem-Based Learning – The primary objective of this program is to promote technology integration throughout the curriculum utilizing problem-based projects. Multimedia, in particular, lends itself well to the constructivist context of problem-based learning. In addition to mastery of content, students have the opportunity to use technology actively as the designer of the game, rather than just as a passive player. Students use multimedia to create the same kind of hyperlinked and cross-referenced content they encounter continually on the Internet. Due to the successful infusion of this problem-based technological approach with content, projects in the past have served as models for teachers in all subject areas, and have created a wider interest in problem-based, constructivist technology projects for students across a wider array of topics. Teachers who have not pursued technology integration in the past, are more willing to try a project using the “game” template after seeing their students’ involvement and success.
2. Promotion of Higher Order Critical Thinking - Students summarize, analyze, evaluate, and synthesize the content and information that they wish to present in their games through reading and process-writing projects done in their Language Arts classes, and project work done in their Science classes. To identify relevant and non-relevant information, they continually revise predictions, draw inferences, and monitor their own comprehension. In doing so, they refine the problem-solution process to be able to transfer that process to the context of their game.
3. Promotion of Interdisciplinary, Thematic Learning – This approach encourages students to integrate content information they are learning in separate subject areas under a larger thematic schemata. Making connections across curriculum promotes higher order abstract thinking, which can be transferred to other situations and other content.
4. The Grounding of Content within a “Real World” Context – As part of this project, students have in the past been encouraged to visit websites to learn about real archaeological research. Findings from real digs, and the conclusions of real experts are incorporated into knowledge gained in the classroom. Additionally, experts, such as a real homicide detective for the forensics game, have been brought in to speak to students about their own experiences, and to “critique” the games in terms of their use of “real” clues and evidence. This real world aspect lends authenticity not only to the games, but to the perceptions the students have about what they are learning.

### **Program Innovation**

This practice is innovative in its application of interdisciplinary content and the infusion of that content with sophisticated technology skills. Students are engaged in critical thinking and higher order thinking processes at each stage of the project. Ownership of the end product promotes a high level of

engagement and motivation in students. Students are excited about having others play the games they have designed, and enjoy the insights they gain as they anticipate their players' actions. Most students experience electronic games only as players. This practice allows students to step to the other side of the game.

### **Student Achievement**

This program promotes student achievement by channeling young peoples' natural love of computers in such a way that students feel a great deal of ownership in the games they are creating. This sense of investment in the outcome, causes students to want to achieve a higher standard in their end product. Rubrics play a large part in helping students to feel this sense of participation in their own learning. Rubrics provide a framework where expectations are clear, but creativity and flexible thinking are encouraged. In addition, they are designed to allow achievement and success at a variety of levels. Rubrics are presented at the beginning of the project, and students interact with them on a daily basis as they build their games. Working with the rubric is a process of constant reflection and decision making for students.

II. **STANDARDS** – *List the specific Core Curriculum Content Standards, including the Cross-Content Workplace Readiness standards, addressed by the practice and describe how the practice addresses those standards. Provide an example to substantiate your response.*

### **Core Curriculum Content Standards**

The Core Curriculum Content Standards vary according to the type of game and the subject area for which it is being produced. Below is a list of Content Standards that have been used thus far.

#### **3.1 Language Arts Literacy**

All students will understand and apply the knowledge of sounds, letters, and words in written english to become independent and fluent readers, and will read a variety of materials and texts with fluency and comprehension. - Students read materials from the Internet, text, and library sources to gain content knowledge required for project completion.

#### **3.2 (Language Arts Literacy)**

All students will write in clear, concise, organized language that varies in content and form for different audiences and purposes. - Students write both fiction and exposition for use by players of the game using process writing and editing techniques.

#### **3.3 (Language Arts Literacy)**

All students will speak in clear, concise, organized language that varies in content and form for different audiences and purposes. - Students speak and present content information in conjunction with the Interactive game presentation, directions, play, and evaluation of their game and the games of peers. (Master of the Game)

#### **3.4 (Language Arts Literacy)**

All students will listen actively to information from a variety of sources in a variety of situations. - Students will listen to presentations in progress and relate mutually with the interactive games and peers to complete the tasks imbedded in the games created by peers and their own games.

#### **3.5 (Language Arts Literacy)**

All students will access, view, evaluate, and respond to print, nonprint, and electronic texts and resources. - Students access a variety of Internet sites, use graphics, animation, sound, and interactivity to select information to create and support the project.

#### **5.1 (Science)**

All students will develop problem-solving, decision making and inquiry skills, reflected by formulating usable questions and hypotheses, planning experiments, conducting systematic observations, interpreting and

analyzing data, drawing conclusions, and communicating results. Students communicate experimental findings to others and recognize that curiosity, skepticism, open-mindedness, and honesty are attributes of scientists. Students identify questions and make predictions that can be addressed by conducting investigations incorporating the use of a control. (*Candid Candle Demonstration; Now You See It Experiment; Invent-A-Face Crime Scene Analysis; Owl Pellet Dissection; Dead or Alive Experiment; Fingerprint Analysis Activity; Evident Clues Data Collection*)

### **5.3 (Science)**

All students will integrate mathematics as a tool for problem solving in science, and as a means of addressing and/or modeling scientific theories.

All students will perform and determine the reasonableness of estimates, measurements, and computations of quantities and express answers in correctly derived units. (*Handiest Tape Measure Activity; Scale Measurement Practices; Dino-Might Project*)

### **5.4 (Science)**

All students will understand the interrelationships between science and technology and develop a conceptual understanding of the nature and process of technology.

All students will analyze a product or system to determine the problem it was designed to solve, the design constraints, trade-offs and risks involved in using the product or system, how the product or system might fail, and how the product or system might be improved.

(*Integrated Science Telecast Lie Detector and Fingerprint Database Demonstration Lesson*)

### **5.7 (Science)**

All students will gain an understanding of natural laws as they apply to motion, forces, and energy transformations.

All students will use quantitative and qualitative data to show that when more than one force acts on an object at the same time, the forces can reinforce or cancel each other producing a net (unbalanced) force that will change speed and/or direction of the object. (*Forces Labs; Ballistics analysis*)

### **6.4 (Social Studies)**

All students will demonstrate knowledge and understanding of major events and issues in world history from pre-history to the modern world – Students study early civilizations and early human origins to create an interactive archaeological dig game. This game leaves clues about early species and asks the player to figure out what they have “dug up” based on clues placed by the game’s designer.

**6.8 (Social Studies)** All students will acquire and apply understanding of the spatial contexts of people, places and the environment on earth. – Students use information about the movement and location of early peoples and their interaction with their various environments as clues in the archaeological dig games.

### **8.1 (Computer Applications)**

All students will use computer applications to manipulate and communicate information – Students use multimedia authoring software to build and present their games. The Internet is used extensively for research, and students learn to maneuver in a networked environment as well as within the operating system.

Cross-Content Workplace Readiness Standards and Progress Indicators

#### **Standard 2**

All Students Will Use Information, Technology, And Other Tools. – Students gain an understanding of computer networks, operating environments, troubleshooting and multimedia through utilization of all these technologies.

#### **Standard 3**

All Students Will Use Critical Thinking, Decision Making And Problem-Solving Skills. – Students must think critically about content in order to decide how to present it most effectively in their games. In addition,

working with rubrics prompts them to make decisions about what kind of information they need, and how they should obtain it. These processes mean that students are continually becoming more adept at identifying problems and applying the most appropriate solutions.

#### **Standard 4**

All students will demonstrate self-management skills. – Using a rubric allows students to manage their own time during the course of a project. Students use the rubric to make decisions about which tasks to accomplish and in what order. Working with the teacher, students learn to manage their time and to plan and organize within the framework provided by the rubric.

**III. EDUCATIONAL ASSESSMENT MEASURES** – *Describe the educational needs of students that the practice addresses. Document the assessment measures used to determine the extent to which the objectives of the practice have been met. Provide assessments and data to show how the practice met these needs.*

#### **Educational Needs of Students**

This program meets the needs of students by giving them critical technical skills they will need as they move forward into a world that is becoming increasingly dependent on technology. Students become adept at maneuvering within computer operating environments and networking systems, which they will encounter during later educational experiences as well as in the workplace. Additionally, this program provides students with an opportunity to become independent thinkers, a dimension of learning that will enable them to think critically during all future educational experiences.

#### **Forms of Assessment**

Assessment for the final project (the game) is based upon a rubric. The rubric has four levels of accomplishment: Novice, Apprentice, Practitioner, and Expert. Students are told that a level of practitioner is expected, and anyone wishing to enhance their project can work at the expert level. The rubric is given to students at the beginning of the project so that they can make decisions, working with the teacher, about how to proceed, and in what order to accomplish the various tasks. Pre-game projects done in English, Science, or Social Studies classes use various assessment methods including rubrics, tests, essays and expository writing, and lab reports.

**IV. REPLICATING THE PROGRAM** – *Describe how you would replicate the practice in another school and/or district.*

Replication of this program assumes that the school wishing to participate has computers, and some sort of multimedia authoring software such as PowerPoint. The interdisciplinary aspect should involve teachers from at least two core subject areas. These teachers would be largely responsible for foundation and background activities in which students gather knowledge about the content they will present in their games. The content to be presented in a game can cover any topic or subject area from the parts of a sentence to biospheres, and can be covered at any grade level from 3-12. Due to the complexity of the hyperlinking, this project would not be recommended for grades K-2. The structure of the game is built around a central page that poses a question or problem that the player must solve. This page also contains hyperlinked information leading to other pages. The player can click on any link from the central page and be taken to a specific area where particular information is gained. The player can then go back to the central page and make another choice about how to proceed. This process continues until the player discovers all necessary information for solving the problem. When the player has all necessary information, he or she can then click to go to a page where a guess at the solution can be made. If the guess is correct, the player is told they have completed the game successfully. If the guess is incorrect, the player is brought back to the “guess” page again. It is recommended that one teacher coordinate the entire project, and be in charge of monitoring and assessing the finished game.